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Federal Communications Commission
Office of the Secretary

July 16, 1990

LESLIE A. TAYLOR
President

Rm-7511

Ms. Donna R. Searcy
Secretary
Federal Communications Commission
1919 M Street, N.W.
Room 222
Washington, D.C. 20554

Re: Petition for Amendment of Parts 2 and 25 of the Commission's
Rules to Establish a General Satellite Service in the Ka-band

Dear Ms. Searcy:

Attached are an original and four of the above-referenced Petition. By separate filing, an application to construct, launch and operate communications satellites in the domestic fixed-satellite service is being filed. In addition, a portion of the application is being submitted with a request that it be withheld from public inspection.

If you have any questions, please contact the undersigned.

Sincerely yours,

Leslie A. Taylor
Leslie A. Taylor

Attachments

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Federal Communications Commission
Office of the Secretary

RM - 7511

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July 16, 1990

**PETITION FOR RULEMAKING
AND REQUEST FOR PIONEER'S PREFERENCE**

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Executive Summary

Norris Satellite Communications, Inc. ("Norris") requests the Commission to reallocate the frequency bands 19.7-20.2 GHz (space-to-earth) and 29.5 - 30.0 GHz (earth-to-space) to a General Ka-band satellite service in which fixed, broadcasting and mobile satellite services could be provided. Such a reallocation is in the public interest because it would:

- (1) encourage near-term implementation of the Ka-band;
- (2) promote development of the United States spacecraft, ground segment and launch industries and enable the United States to maintain its technological lead in the communications satellite field;
- (3) stimulate development of new satellite-based services, including those requiring extremely high data rates, enhanced audio or video capabilities, as well as personal access satellite service;
- (4) enhance efficient use of the spectrum-orbit resource and alleviate pressure on C and Ku-band facilities and the need to coordinate use of those facilities; and
- (5) provide follow-on capacity for users of the NASA Advanced Communications Technology Satellite (ACTS).

Creation of a General Ka-band satellite service is consistent with the Commission's philosophy of promoting generic frequency allocations to encourage the introduction of new services by allowing providers greater flexibility in meeting a variety of user needs.

Along with this Petition for Rulemaking, Norris has filed an application for authority to construct two and launch and operate one communications satellite in the Ka-band. Norris asks the Commission to grant it a Pioneer's Preference which would acknowledge the risks inherent in being the first United States commercial supplier of new satellite services in the Ka-band.

I. Introduction

Norris Satellite Communications, Inc. ("Norris"), pursuant to Section 1.401 of the Commission's Rules, 47 C.F.R. §1.401 (1988) hereby petitions the Commission to initiate a rulemaking proceeding to establish a General Ka-band satellite service. In a contemporaneously filed application, Norris has applied for authority to construct two Ka-band communications satellites and to launch and operate one of them.

The reallocation of heretofore unused satellite service frequencies¹ in the Ka-band (30/20 GHz) for a General Ka-band Satellite Service will support significant advances in satellite communications. It will accrue ample benefits to satellite users and will serve the public interest.

Accelerated use of the Ka-band for satellite service would promote spectrum efficiency, ease satellite coordination problems with other nations in the Americas and provide additional space segment capacity for users of satellite services from the established and heavily utilized C-, Ku- and L-bands. To achieve these goals, Norris urges the Commission to amend its Rules in Parts 2 and 25, and revise its Table of Allocations.

Along with the revision of the U.S. Table of Allocations, Norris asks that the Commission consider proposing the International Table of Allocations at the 1992 World Administrative

¹ For example, the Commission's current Table of Allocations has assigned 2500 MegaHertz of spectrum in the Ka-band to the Fixed Satellite Service.

Radio Conference.²

Specifically, the Commission should create a new General Ka-band Satellite Service by reassigning the frequency bands 19.7-20.2 GHz and 29.5-30.0 GHz to a General Satellite Service in which fixed-satellite, broadcasting-satellite, mobile-satellite and personal access satellite service could be provided.

Norris seeks the creation of a general service to enable it and similarly situated "spectrum pioneers" to expedite the initiation of services in a new frequency band. To accelerate the use of Ka-band frequencies and accrual of the public benefits from such use, the Commission should permit flexibility to provide a diverse array of services.

II. The Commission Should Establish a General Satellite Service Permitting a Broad Range of Services in the Ka-band

A General Satellite Service would enable satellite operators the option to provide a mix of fixed, mobile, aeronautical, maritime and broadcast services now collectively available through access to several satellites operating in different frequency bands. Aggregating various services on the same spacecraft would promote spectrum efficiency, reduce transaction costs, including investment in multiple earth stations, and achieve economies of scale and scope.

The Commission has recognized the efficiency and prudence in

²See Additional Comments of Leslie Taylor Associates in General Docket No. 89-554.

equipping satellites to provide different services, e.g., fixed and radiodetermination satellite service (RDSS), that would be offered by two unrelated enterprises.³ Similarly, the Commission has authorized a single corporation to deliver multiple services via a single satellite, such as Geostar's provision of RDSS and messaging services via the same satellite.⁴

The Commission and the United States in other instances have supported the adoption of generic satellite services as promoting efficient use of the spectrum-orbit resource. In 1987 the U.S. proposed amending the International Table of Allocations to establish a generic allocation for mobile satellite service in the L-band, incorporating maritime, aeronautical and land mobile

³ See GTE Spacenet Corp., 2 FCC Rcd. 5312 (rel. Aug. 28, 1987) approving modification of GSTAR IV Fixed Satellite Service construction permit to add a transmit/receive payload in the Radiodetermination Satellite Service.

"By including the transmit/receive RDSS payload in the GSTAR IV satellite, the introduction of two-way radiodetermination service will be accelerated by several years . . . We . . . find that there is no significant adverse impact on fixed-satellite service in the 12/14 GHz band." Id. at 5313. The Commission also held that GTE Spacenet "will be able to fulfill its authorized [Fixed Satellite Service licensed] purpose" even with the addition of an RDSS transmit/receive package. Id.

⁴ See Geostar Corp., Mimeo No. 6144 (rel. Aug. 7, 1986) authorizing construction, launch and operation of 3 satellites in the Radiodetermination Satellite Service, applications modified to expand bandwidth authorized for "ancillary" Fixed Satellite Services, sub nom. Geostar Positioning Corp., 5 FCC Rcd. 1658 (released March 14, 1990).

The Commission also has allowed a mobile satellite service provider to use feeder link frequencies allocated to the Fixed Satellite Service. Amendment of Parts 2, 22, and 25 of the Commission's Rules to Allocate Spectrum for and to Establish Other Rules and Policies Pertaining to the Use of Radio Frequencies in a Land Mobile Satellite Service for the Provision of Various Common Carrier Services, CC Docket No. 84-1234, Order on Reconsideration, 4 FCC Rcd. 6041, 6053 (1989).

applications.⁵ Such a generic allocation, the Commission recognizes, promotes user and carrier flexibility and the opportunity for satellites to provide capacity for a number of previously mutually exclusive services.

Future satellite services are likely to be delivered from space platforms where various services are aggregated in a condominium configuration. The Commission's creation of a General Satellite Service would recognize that less service specific classifications better satisfy consumer requirements and enable operators to exploit technological economies of scale and spreading of risk.

III. A General Satellite Service Would Provide an Incentive for Development of Ka-band Systems

Users and satellite carriers have declined to pursue the Ka-band option, because, so far, the costs have exceeded the benefits

⁵ Preparations for an International Telecommunications Union World Administrative Radio Conference for the Mobile Services, Gen. Docket No. 84-607, Report and Order, 2 FCC Rcd. 821 (rel. Feb. 13, 1987). The proposal for a generic mobile satellite service allocation in the L-band "seeks to attain maximum flexibility and competition." Id.

See also, Public Notice, "Implementation of the 1987 WARC For Mobile Services," 3 FCC Rcd. 6780 (rel. Nov. 23, 1988), in which the Commission states:

By reallocating [L-band] spectrum . . . to be shared both primarily and secondarily among the land, aeronautical and maritime mobile satellite services, the U.S. was partially successful in establishing spectrum for more general mobile satellite service (land, aeronautical and maritime). However, the Conference did not allocate the spectrum to a generic MSS service as proposed and the allocation for shared service was less than sought. Because the mobile satellite service was unduly restricted, the U.S. took a formal reservation to use the L-band spectrum in the way most appropriate to satisfy its MSS requirements while recognizing the priority of AMSS(R) and maritime safety communications.

and certain aspects of Ka-band technology are as yet untested. But neither the Commission nor the public need to wait for increasing congestion, complex and costly satellite coordinations and the passage of many years before utilizing the Ka-band to the benefit of the American public.

The Commission can change the Ka-band cost-benefit equation by eliminating restrictive service definitions that reduce the operational and marketing flexibility of a Ka-band satellite operation. The Commission should apportion 500 MHz of the Ka-band described herein (500 MHz for earth-to-space and 500 MHz for space-to-earth), now allocated for Fixed Satellite Service, on a primary basis and Mobile Satellite Service on a secondary basis, for a range of satellite services. Rather than view the Ka-band simply as additional spectrum for division into mutually exclusive allocations for Fixed, Mobile, Aeronautical, Maritime, Radio Navigation, Broadcast and Radio Determination Satellite Services, etc., the Commission can affirmatively encourage satellite entrepreneurs to take the risk involved in implementing a new frequency band.

The new generations of Ka-band satellites promise to use spectrum more efficiently in terms of frequency reuse, narrower spot beams and aggregation of traffic now spread unevenly across a variety of frequency allocations. In view of accelerating foreign development of the Ka-band, the Commission grant of this Petition would accelerate the development and market entry of earth station and satellite innovations. Perhaps incumbent satellite operators

have become content with the C- and Ku-bands, notwithstanding intense foreign research and development that in the future might threaten to overtake United States technological supremacy in the field of satellites.

A General-Satellite-Service should help preserve this nation's technological superiority in satellite design and manufacture. Likewise, it could help reduce our balance of trade deficit in telecommunications equipment.

IV. Implementation of Ka-band Satellite Service Would Result in Substantial Public Benefits

The growing number of satellites and customers using the C- and Ku-bands presents increasing difficulty in coordinating use of the limited geosynchronous orbital arc. The Commission has ordered reduced orbital spacing of satellites ⁶ requiring satellite operators and users to make additional investments in larger and more costly earth stations. Notwithstanding this requirement, and the increasingly complex coordination of satellites, 2500 MHz of Ka-band spectrum, allocated for Fixed Satellite Service, lies virtually dormant.

A Commission decision to liberalize its view on what satellite services can be provided within the Ka-band would achieve substantial benefits. Incumbent and new satellite operators that have been disinclined to deploy Ka-band satellites would have new

⁶ See Licensing of Space Stations in the Domestic Fixed-Satellite Service, 54 Rad. Reg.2d (P&F) 572 (1983).

incentives to do so. Over time, user migration to the Ka-band would relieve congestion in the C-, Ku- and L-bands. Additionally, the United States Government and existing satellite operators would achieve relief in the increasingly difficult task of coordinating United States satellites with existing and future satellites of Canada, Mexico, Brazil and other nations in the Americas.

As a result of decreased pressure on satellite coordination with other nations, there would be less likelihood that other nations would incur the equipment and infrastructure expense associated with reduced orbital spacing between their satellites and adjacent United States satellites.⁷

V. A General Satellite Service at Ka-band Would Encourage Implementation of Follow-On Capacity to the NASA Advanced Communications Technology Satellite (ACTS)

In addition to stimulating introduction of a commercial Ka-band satellite system, creation of a General Satellite Service would promote implementation of a commercial follow-on program for NASA's Advanced Communications Technology Satellite Service (ACTS). Such a commercial venture will have substantial synergy with the ACTS program by encouraging many more institutions to invest in

⁷ "Based on the evidence supplied by the commenters . . . the Commission's monitoring reports and the Advisory Committee's reports, we find that satellite interference has become a problem that is within our statutory responsibility to address with rules." Amendment of Part 25 of the Commission's Rules and Regulations to Reduce Alien Carrier Interference Between Fixed-Satellites at Reduced Orbital Spacings and to Revise Application Processing Procedures for Satellite Communication Services, CC Docket No. 86-496, Notice of Proposed Rulemaking, 2 FCC Rcd. 762 (rel. Feb. 12, 1987), Report and Order, 3 FCC Rcd. 720 (1988).

ground segments needed for ACTS experiments. Following the expiration of ACTS, the ground segment can then be used with the commercial Ka-band satellite.

The accompanying Norris Satellite Communications, Inc. application to provide Ka-band service blends new technology and service innovation in a manner that will benefit the public. AS an innovator, assuming substantial risk, Norris requests a "pioneer preference" and market entry headstart, such as the Commission proposes in Gen. Docket No. 90-217.⁸ Other applications with innovative service proposals are likely to follow if the Commission liberalizes the scope of services a single Ka-band satellite could permissibly deliver.

VI. The Proposed Reallocation is Consistent with Commission Actions Supporting Accelerated Use of New Spectrum Allocations

Throughout the years the Commission has viewed unused spectrum as a means to relieve congestion, generate competition, stimulate innovation, provide service diversity and reduce costs. Facing increasing congestion and challenge to its "open skies" policy favoring hearing-free authorizations for all qualified applicants, heretofore, the Commission has resorted primarily to administrative filing windows, reduced orbital spacing requirements and a goal of authorizing orbital slots with 50 state

⁸ See Establishment of Procedures to Provide a Preference to Applicants Providing an Allocation for New Services, General Docket No. 90-217. Notice of Proposed Rulemaking, FCC 90-141 (released April 27, 1990) and Comments of Leslie Taylor Associates.

coverage potential to new applicants.⁹

Thus far the Commission has not promoted Ka-band spectrum alternatives as a means to stimulate new or migrating use. Yet in other situations where users perceive that a new frequency band has challenging technological, propagational or operational characteristics, or merely lacks an installed base of equipment tuned to that frequency, the Commission has worked to generate a "critical mass" of both service providers and users.

The Commission vigorously supported UHF television as a way to expand broadcast options in localities.¹⁰ Armed with legislation requiring all television sets to tune UHF frequencies,¹¹ the Commission actively supported the UHF television option with reduced regulatory burdens, higher power authorizations and carriage requirements on cable television systems in the region. The Commission correctly recognized that it had to lend its regulatory support to enable UHF broadcasters to achieve a degree of competitive parity with their VHF counterparts who enjoyed better propagational characteristics, network affiliations and bigger audiences.

⁹ See Assignment of Orbital Locations to Space Stations in the Domestic Fixed-Satellite Service, 3 FCC Rcd. 6972 (1988). Establishment of Domestic Communications Satellite Facilities by Non-Governmental Entities, Second Report and Order 35 FCC 2d 844, 850 (1972); see also First Report and Order, 22 FCC 2d 86 (1970).

¹⁰ See, e.g., Improvements to UHF Television Reception, Gen. Docket No. 78-391, Report and Order, 90 FCC 2d 1121 (1982).

¹¹ All Channel Receiver Act of 1962, P.L. 87-529, 76 Stat. 150 (July 10, 1962), codified at 47 U.S.C. Sec. 303(s), implemented in FCC Docket 14769, First Report and Order, 27 Fed. Reg. 1169 (Nov. 28, 1962).

The Commission also has recognized the need to make satellite communication policy conducive to multiple carrier entry, i.e., an "open skies" policy,¹² diverse provisioning arrangements, including transponder sales on a private non-common carrier basis,¹³ and deregulation in view of competition and carrier non-dominance.¹⁴

VII. The Commission Should Grant Norris Satellite Communications a Pioneer's Preference to Implement Ka-band Satellite Service

The creation of a filing window, as the Commission has used for C- and Ku-band service, is unnecessary where ample spectrum and orbital slots exist to accommodate other applicants, and where the first filer is entitled to a market entry headstart. Delayed grant, or delayed action on this Petition could forestall introduction of new technology and handicap U.S. private industry vis-a-vis foreign government sponsored development and implementation of Ka-band satellite systems.

The Commission has the opportunity, through this proposed rulemaking, acted on concurrently with Norris Satellite Communications Inc.'s application and request for a "Pioneer's Preference," to foster the development of new satellite technology in the United States and the delivery of important new telecommunications service to the American public.

¹² See n. 10, supra.

¹³ Transponder Sales Order, CC Docket No. 82-45, 90 FCC 2d 1238 (1982).

¹⁴ Competitive Carrier Services, Fourth Report and Order, 95 FCC 2d 154 (1983).

VIII. Conclusion

In summary, Norris Satellite Communications, Inc. submits that there is a pressing need for the Commission to foster greater service flexibility in Ka-band satellite communications. This can be accomplished through creation of a General Satellite Service and appropriate authorizations and preferences to the pioneer--Norris--which is willing to take the risk to implement this new technology.

For the foregoing reasons, Norris Satellite Communications, Inc. requests that the Commission institute a rulemaking proceeding to amend Sections 2, 25, and its Table of Allocations to create a General Satellite Service and grant it a Pioneer's Preference concurrently with the action on its application for construction, launch and operation of a Ka-band communications satellite.

Respectfully submitted,

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